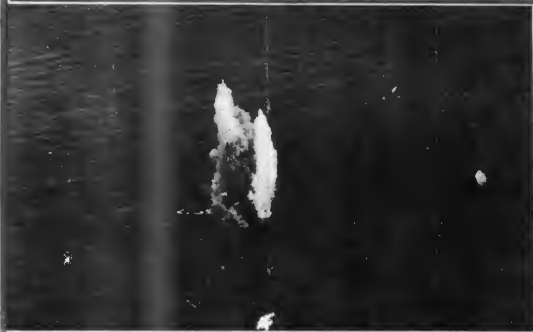


July 4, 1921

Issued Weekly

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AVIATION AND AIRCRAFT JOURNAL



Naval Aircraft Scoring a Direct Hit on the Submarine U-117

VOLUME XI
Number 1

SPECIAL FEATURES

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SCHEDULE OF THE BOMBING TESTS
THE COST OF AIRCRAFT INSURANCE
DEUTSCH DE LA MEURTHE AVIATION CUP
A DISTINCTIVE DESIGN: THE AIRLINER

SOARING AND GLIDING EXPERIMENTS IN GERMANY

RECEIVED
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TIMES BUILDING

NEW YORK



AVIATION AND AIRCRAFT JOURNAL

Member of the United Bureau of Circulations

VOL. XI, NO. 1

JULY 4, 1921

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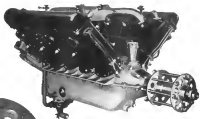
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	WRIGHT R-2	WRIGHT R-4
Power at 3000 R. P. M.	100 H. P.	140 H. P.
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AVIATION AND AIRCRAFT JOURNAL

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EDWARD P. WARDEN, CONTRIBUTOR, N. Y. & LONDON
RALPH H. LINDSEY, CONTRIBUTOR, L. Y. & LONDON

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No. 1

Editorial Announcement

ALEXANDER KLEMM who has been technical editor of AVIATION AND AIRCRAFT JOURNAL for five years with the exception of the time he was in the Air Service attests with this issue. His connection with a company which is to build aircraft will probably have continuing to give editorial attention to the publication.

The work of Mr. Klemm in connection with this country has placed him in the front rank of aeronautical engineers. He received an Institute in Aeronautics at the Massachusetts Institute of Technology to enter the Army Air Service and his experimental engineering at McCook Field has been passed on to the Army Engineers. His constant presence which he will continue to add to his organization, and it is hoped that, which he will have as active collaboration with the publication, he can in a consulting capacity continue to give valued advice and contributions.

Grant Military Machines

A RECENT paper published by The Aeronautical Journal on the Development of Grant Military Machines in Germany, is the best possible example of what may be done in a study of this character. The paper is evidently written by a man thoroughly well posted on the entire development. He has dealt with the subject in a logical, systematic manner, and has drawn practical conclusions which are so sound and valuable that they can be taken to heart by every designer interested in large military machines.

One definite conclusion drawn is that the military bomber machine should be made as large as possible so that the greatest possible range and the greatest possible weight of loads may be carried with a minimum of personnel. Theoretical limitations to size do not appear to hold, and the thing to do is to build larger and larger machines, if the leader is to achieve a maximum advantage.

Three main lines of development are considered. Type A embodies mainly an increase in size of the ordinary airplane with engines carried on the wings, in Type B the wing truss and the rest of the design follows conventional lines, but program is made for a central power plant, driving, by means of gears, either one propeller in the nose of the machine or multiple propellers placed at intervals along the leading edges of the wings. Type C is of the intensely braced type.

There is very little to choose between Type A and Type B in regards efficiency and amount of useful load carried. Whereas Type A involves greater load resistance, Type B supplies a greater efficiency to be given to the propeller, but it does not distribute the weight, so that in the last resort an advantage is achieved by it either in performance or load carried. On the other hand Type C, the intensely braced type, seems to be the only path toward increased efficiency and greater load carrying.

Considering the multiplicity of engines, the writer comes again to the conclusion that the only reason why the Germans used this means was because they had no large engines available. The only sound principle in design would be to reduce the number of engines to a minimum and to use the most powerful engines available.

Considering ground forms of a variety of types, the definite conclusion seems to be that, owing to their complexity and technical difficulties, their use is not advisable at the moment.

The Navarchate of Navarches

WE have before commented on the probable nature of the Navy's move in connection with aeronautics. Contrary to tradition and general custom, for the Navy "navarch" means aeronautics, an aeronaut is an aviator, and aviator means "navarch". The latest acquisition to this great nomenclature consists in designating "airships and dirigibles" under the generic term of "floating planes" and air models, say, such as the machine for the landing tests prepared by the Navy.

Naval men are prone to chuckle at a landlubber calls a cruiser a battleship or if he mistakes the bow for the stern, for it surely displays his ignorance at naval matters. The question then comes whether the Navy men aeronautical engineers for lack of familiarity with men and things that fly, or whether it actually attempts to improve our aviation nomenclature. Should the latter be the case, it may not be wise to call the attention of the Navy to the consistent efforts that have been made in the past with a view to unifying aeronautical terminology. These efforts have resulted in the National Advisory Committee for Aeronautics issuing an aeronautical nomenclature which, having a few exceptions, agrees with that prepared by the Technical Terms Committee of the Royal Aeronautical Society of Great Britain and approved by the British Engineering Standards Association and the British Advisory Committee for Aeronautics. This nomenclature, which is the result of labor extending over several years, is generally adopted by men who fly and build aircraft—to be exact. Aeronautical publications have generally adopted it and efforts are being constantly made to educate the lay press to its use, so the public may come to know correct terms as aeronautics. This is by all means important, for a proper understanding of certain aeronautical terminology is knowledge of aeronautical terms—which is extremely wide and difficult if several terms are used for designating the same thing.

It would therefore seem desirable that the Navy follow the attitude of other government departments in using the nomenclature of the N.A.C.A. instead of coining new words or assuming new meanings to old words, which cannot but cause confusion.

submarine of (a), (b), (c), and (d). For the improvement of the various classes of ships of the Navy in equipment, material, design, and construction.

The Army Test

In the case of the exercises with the co-down, the Board of Observers will plot from their observations as accurately as possible the position of all bombs dropped.

In addition to any other subject of interest, the Board will submit data on the following items:

Standard time of zero hour, Standard time at which position of target was determined by air base, Standard time at which bombing operation was stopped, Number and type of bombs carried by each plane, Number of planes making the attack, Time at which first bomb was dropped, Time at which last bomb was dropped, Total number of bombs dropped, Altitude at which bombs were dropped, Sketch of bombing formation, Plot of fall of all bombs, Consolidated report by Commanding Officers, Bombing Squadron, Probability of destruction of aircraft by various bombs under conditions

When planes or formations cross, the plane or formation bearing the other on its right shall keep clear.

Formations overlapping other planes shall not pass below single planes one above or below another formation in the same vertical plane.

Formations of planes moving at different altitudes shall pass above or below each other in the same vertical plane only when there is sufficient difference in altitude for maneuvering at one of various inclines.

Overlapping planes shall keep well clear of those certain. Planes will leave their base in time to arrive over the target in accordance with the prearranged schedule. This schedule will be subject to change by the Commander Air Force at the firing point, in order to avoid unnecessary delay or the unnecessary flying of planes. In the absence of any such orders from the Commander Air Force, the prearranged schedule will be carried out for each exercise.

In case of any plane having a forced landing, it will broadcast the fact and the nearest place of its descent will stand in and circle over it, or fly between it and the nearest surface



EX-GERMAN NAVAL CRUISER PRINZESS ALICE, TO BE BOOMED BY AIRCRAFT ON JULY 28

conducted by the attack. Probabilities of lowering liability of hits by bombs by maneuvering ship. Ability of aircraft to cover an successful search and deliver attack at considerable distance off shore.

Army Procedures and Rules

No plane will fly over any vessel except the target, or over any village or building, while bombs are attached.

The Rules of the Board for the air, as prescribed herein, will be carefully observed by all pilots, together with such local rules as may be established by the commanders of the different bases and the Commander Air Force.

Whenever a flight, squadron, or division maneuvers an attack, the other divisions in the vicinity will be careful not to interfere with the attacking planes, keeping clear until the attack is completed. Upon the completion of a successful attack, the attacking unit will proceed to care to its base.

After passing over the target, planes will haltingly turn to the right until completion of their attacks, when they will proceed to base.

All plane running short of fuel will return to base without further orders.

International rules of the air shall apply to all movements of aircraft.

Three or more planes flying in company will be considered a formation; less than three planes in company will be considered single planes.

Any formation of planes will have the right of way over single planes which will keep clear.

Planes or formations meeting head-on, or nearly so, shall each turn to the right.

until cleared. In case of a land plane having a forced landing at sea, the nearest island will proceed to its assistance and will rescue the crew, if practicable. The primary object will be to save the lives of the personnel.

Composition of German Destroyer

The ex-German destroyer G 292 will be attacked by 250-lb. Army bombs on 13 July. Flights by Army planes will be as follows:

1-3 Martin Bombers	18 bombs
2-3 Martin Bombers	18 "
3-3 Martin Bombers	18 "
4-3 Martin Bombers	18 "
5-3 DH-4's	12 "
6-5 DH-4's	18 "

Group Commanders will be permitted to fly their planes in any formation and to drop their bombs in any manner from any safe altitude.

These groups will depart from the base so that the first flight will arrive over the target at 9:30 A. M.

The Commander Air Force at the target will notify the base commander two hours before the attack begins whether the weather is suitable for firing on that date.

The Commander Air Force will notify the base commander when each flight has completed its attack and whether the destroyer is still afloat. If the destroyer is sunk, all planes will return to base and discontinue exercises for the day.

After the completion of the bombing by the Army, should the destroyer still be afloat, she will be attacked by the same groups of Navy planes as far as against the submarine, using 250-lb. Mark I bombs.

The ex-German destroyer will be anchored in approximate column formation, approximately 400 yd apart.

Attack on the Ex-Frankfort

The ex-Frankfort will be attacked Monday, July 18, with Navy 250-lb. heavy-case and 500-lb. light case bombs and Army 300-lb. and 600-lb. bombs.

The first series of attacks will be made with 250-lb. and 300-lb. bombs. After each attack scoring a hit, an examination of the ship will be made by the Board of Observers.

The second series of attacks will be made steadily with 500-lb. light-case and 600-lb. bombs. An examination of the vessel will be made after each attack scoring a hit.

The Senior Officer Present, upon recommendation of the

Composition of Ex-Frankfort

A—250-lb. heavy-case and 300-lb. bombs. Make at least 3 hits.

B—500-lb. heavy-case and 600-lb. bombs. Make at least 2 hits.

C—500-lb. bombs or heavy—

D—300-lb. bombs.

(Two hits with either of heavier types).

Bombing with any type of bomb may be discontinued by Senior Officer Present at any time after the above number of hits have been obtained.

The time for attacking divisions to arrive at target will be signalled from target.



EX-GERMAN BATTLESHIP GOEBEN, TO BE BOOMED BY AIRCRAFT ON JULY 20

(After Plan 7 & 8)

Board of Observers, will decide when a sufficient number of hits have been made with any type of bomb.

The planes to be used in the attacks with 250-lb. and 300-lb. bombs are listed below:

Attack	Planes	Bombs	No.
1	1st & 2nd Divisions of F-4's	250-lb.	12
2	3 Army Martin Bombers	300-lb.	12
3	3rd Division of F-4's	250-lb.	6
4	1 Army Martin Bomber	300-lb.	6
5	8th Division of F-4's	250-lb.	12
6	3 Army Martin Bombers	300-lb.	12

The planes for the first attack will arrive at the target at 9:00 A. M., other flights as signal.

The planes to be used in the attacks with 500-lb. and 600-lb. bombs are listed below:

Attack	Planes	Bombs	No.
1	3 Navy Martin Bombers	500-lb.	15
2	3 Army Martin Bombers	600-lb.	15
3	4 Navy Martin Bombers	500-lb.	6
4	2 Army Martin Bombers	600-lb.	6

The first 500-lb. attack should be ready to take off at 9:00 A. M., as soon the 250-lb. attack has been successful. The planes will be signalled when to leave, but should be ready to leave at half-hour intervals.

A—250-lb. and 300-lb. bombs—Drop 2 bombs each attack

1—Magnet in 6 TH's

2—2 Army Martin Bombers

3—Division of F-4's

4—2 Army Martin Bombers

5—Division of F-4's

6—2 Army Martin Bombers

7—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

8—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

9—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

10—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

11—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

12—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

13—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

14—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

15—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

16—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

17—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

18—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

19—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

20—300-lb. and 600-lb. bombs—Drop 2 bombs each attack

with 300-lb. bombs, after completion of attacks with 500-lb. bombs, and after each with a landing bomb.

If none of the 3000-lb. or heavier bombs explode on the 15-lb. deck at the top of the aircraft carrier assembly, one or more of this type of bomb will be exploded manually, so that greater order than the extent of the damage to a deck of this thickness may be determined, particularly the damage directed through the deck.

If the 15-Offshore launch remains upon the completion of the aircraft attack, the French here will send her 15-lb. gas-fuel using the main battery. The reason will be not less than 15,000 pounds. Full or half value can be used in order to obtain the necessary number of lbs. with the least expenditure of ammunition.

The attack will continue until at least three (3) lbs. with the 500 or 300-lb. bombs have been made, two (2) lbs. with the 500 or 300-lb. bombs and two (2) lbs. with the 1,000-lb. bombs or bombs of heavier charge.

The Army are authorized to make at least two (2) lbs. with the largest type of bomb that may be available. This is a 3,000-lb. bomb.

Security Concerns Regarding

The following quotation from a memorandum of the Joint Staff approved by the Secretary of the Navy is brought to the attention of all concerned and must conform therewith if they are required.

"That the results of these experiments and the emphasis drawn therefrom be held secret by the War and Navy Departments, and be passed upon by the Joint Board, and that all efforts be maintained in making these experiments be restricted accordingly."

(Signed) HENRY B. WATSON

Army Ordnance Navy Develops All-Metal Plane

The Army Air Service has purchased from the Navy one Brewster type D-1 all-metal single engine airplane for \$50,000.00. Delivery of the machine is to be made to the Engineering Division, McCook Field, Dayton, Ohio, where it is understood it will be used for experimental purposes.

The Cost of Aircraft Insurance

By E. S. Martin

WIRELESS COMMUNICATIONS

Insurance is an important factor in almost any business, and is probably of utmost consideration in the advancement of the aeronautical industry because of the elevated hazards of flying.

Insurance companies within the class of business are confronted with a serious problem in their endeavor to offer coverage at rates which will invite operations of aircraft in civil aviation.

The lack of federal control in the licensing of pilots, inspection of planes for their worthiness, and laws to regulate flying is a serious obstacle, and not only tends to keep the insurance rates high but hinders back the progress of civil aviation.

Experiences compiled for the year of 1929 covering aircraft business written by the insurance companies showed a loss rate which was more than double the rate shown by the companies collected, proving thereby that the rates were not nearly adequate to cover the risk. Aeronautics underwriters realized that an increase of rates would tend to keep a poorer selection of business and more competition, and that a more serious undertaking and could only be accomplished by a great additional cost to the business. By reason of the fact that so few companies are writing aircraft coverage, this service cannot be effected at present, although plans for its construction are being laid.

Why cannot the insurance companies discriminate between the separate coverages of civil aviation operated by experienced pilots over favorable territory, and the pilot using a single machine which has been carefully insured and is flown from a poor airplane? This question is certainly being asked.

Could an absolute checking of the actual conditions surrounding each risk can be made, underwriters can only judge in terms of the application which is submitted covering the plane and statement called for showing the ability of the pilot who will operate it in a more sane manner conditions are stated accordingly, and were it possible for the insurance companies to determine the true facts in each case each of the business would be greatly benefited.

An aerial example which recently occurred in only one of many like it. One of the larger insurance companies was asked for immediate coverage on a type of plane which is generally flown. The applicant advised that the plane had been crashed after a thorough overhauling and rebuilding by one of

our aviation manufacturers, and could be flown from a good mechanic in a suitable place. When an inspection was made of the machine the next day, it was found unable to fly. In addition to the general condition, there also were broken and badly painted, the fabric was nearly falling off, and no one had seriously been taken to keep the wires clean from rust although the machine was constantly exposed to the weather. The mechanic then advised a crash. Without further delay and with perfect air conditions, takeoffs and landings might be made no more than without accident. This machine is sold in operation.

How can the insurance companies discriminate under these circumstances? If the insurance rates are high, it is not the fault of the companies, nor is it the fault of the pilot. It is the fault of the government in its inability to enforce their policy terms. Only such kind of action of advice by insurance companies covering aerial operation. Rates for general coverage will decrease just as soon as severe penalties are imposed for low insurance. Every airplane which is flown should have a certificate of worthiness issued after having been thoroughly inspected. Pilots should not be allowed to fly until they have qualified for a license, and that they are given flying tests should be enforced. Every accident should be investigated and dealt with accordingly. Public vehicles are not allowed to dash through the streets regardless of public safety. Neither should aircraft be permitted to fly at pleasure, uncontrolled, to warrant a safe landing in case of difficulty.

The insurance companies do not welcome high rates. Even with the landing rates have had to consider some other have been made in the night direction. If an insured pilot meets with an accident through carelessness a record of this is sent to the National Aeronautics Underwriters Association and this record is reported to the insurance companies. That pilot is then barred from further insurance or is graded so low that it can only be obtained at a very high rate. Unless a reliable reliable board of inquiry is appointed to determine the cause of an accident, the National Aeronautics Underwriters Association is contemplating taking the matter in hand. Again this board would only have power to bar the operator from further insurance and could not subordinate a pilot directly. The record of insurance companies to accept acceptable risks does not necessarily hinder further operation of machines.

Responsibility for the safe operation of aircraft are easily made, but the current need at this time is action and immediate action is required by the industry, and those interested, to draft laws and get them into effect.

Soaring and Gliding Experiments in Germany

By Stanley Yale Beach

For over a year Germany has been pursuing experiments with gliding and soaring machines and the results obtained are so interesting that a few words on the subject may not be amiss. The interest taken is thus on by Germany is attributed to the destruction of aeronautical material made compulsory by the treaty of Versailles.

Last summer in the Rhine district of western Germany a gliding and soaring competition was held for the first time in the League of Nations Model Aircraft and Glider Club. The event was considered of sufficient importance by the authorities to obtain the support of the German air ministry.



TOP: WING SECTION OF THE AUSTRIAN GLIDER
BOTTOM: CLIMBER OF THE MARSHALL

and various aircraft manufacturers and aeromarine organizations also contributed their support.

The following brief account gives a good idea of the machines which competed and of their performance.

The monoplane covered by the Austrian Aeronautical Society and designed by Engineer Klempner was a rigid monoplaner with ailerons, based on Junkers' system practice, but not of metal construction like that machine. The wing, the head part of the body, and the undercarriage, are built up as a single unit of plywood underneath, the tail and the rear half of the fuselage forming another unit. The undercarriage consists of a pair of spring shoes, supported beneath a pair of aluminum "struts" which project from the wings. The span was 35 ft. and the wing area 372 sq. ft., while the weight empty was but 125 lb.

The monoplane entered by Engineer Bess, of Hainburg, was a machine of the Zenith type or Taube type, with one rigid strut from the fuselage to the wing. The wings are built up as a frame of bamboo, great flexibility being secured. Control is effected by warping the wing tips, which are used for lateral, longitudinal and directional steering. Behind the main wings is fitted a smaller pair, also of very flexible construction and arranged to flap by the action of the main flaps, set at a out of pedals. The main landing wheels are taken by the pilot's legs, which project, through landing and starting, down through the bottom of the body. In order to cope with this machine a speed from 15 to 20 m.p.h. is necessary.

Engen von Loessel's machine was a normal type of biplane before with winging wings. On August 3, 1930, von Loessel covered a distance of 1295 ft. in soaring flight against a wind of 14 m.p.h. The next day he started against a wind of

25 m.p.h. and had been on the air one-and-one-half minutes when the elevator failed, and von Loessel was killed in the fall.

Bessler and Hainburg entered a normal biplane gliding machine, which was badly damaged after some early flights. A biplane belonging to the Nuremberg Club (Nuremberg Club), in which the pilot hung from the lower wings in the ancient style of the earliest gliding experiments, also competed. This glider weighed but 35 lb. Glides up to 1396 ft. were accomplished, which is more of opening than of records achieved in soaring flight.

A world's distance record was made by Engineer Klempner.



THE AUSTRIAN GLIDER SOARING ON AN EISEN KREIS

with underwinged Auster monoplane, when it covered a distance of 5096 ft. on Sept. 6, 1930, while it made a duration record of 2 min. 52 1/2 sec. the following day. These were the best records for duration and distance made last year.

The first gliding and soaring flight competition is to be followed by a similar event this year, which will be held under the patronage of the "Wienerische Aeroklub" (for Luftfahrt) (Austrian Aeroclub for Aeromarine), of Berlin, and will be managed by the League of Nations Model Aircraft and Glider Clubs.

The object of these competitions is the experimental development of flight by the aid of the natural forces of the wind, that is, soaring flight. The subject has very considerable scientific and a difficult sporting interest, and it is by no means certain that the results obtained will be of no possible use for the development of aircraft developments.

It is desired to know, as far as possible, that continued progress be made in the art of soaring flight, and at the same time to encourage the sporting interest in the competition. This year's meeting is to take place in August at the "Wasserkuppe", the place where the first competition was held.

It is proposed to award the first prize of 30,000 marks for the longest duration flight exceeding five minutes, the difference of elevation or rise of height permissible being not over 104 ft. This means the prize will only be awarded on one a substantial increase in made over the 1930 record. Other prizes will be awarded for the greatest distance flown, for the most gliding on soaring flight, etc. A total of 100,000 marks prize money is available.

Believing that international cooperation will lead to a more rapid and complete solution of soaring flight, the promoters have decided that this contest shall be open to all nations, and

and would be competitors who obtain full information as to the conditions of entry from the office of "Hilfen-Organisation-Weissenhof 1931," at Paderborn-Biele, Bielefeld-Station 5.

Eventual experimental work with athletes in Germany has produced some remarkable results, particularly those made in Paderborn and Wark in the Black Forest, and by Herr Herth, who has made flights of 25 km. duration, with very short rates of descent. It is, however, expected that the 1931 competition will produce really progressive results. The interest taken in this art in Germany is the direct result of the destruction of aeromarine material made compulsory by the Treaty of Versailles. Disposed of under-driven aircraft, enthusiasts have taken up a branch of recreation for which others have no time to spare.

Aerobici Owners of Pennsylvania

The assistance of the Aero Club of Pennsylvania has been requested by the Adjutant General of the Pennsylvania National Guard and by Major A. E. Board of the Third Corps Area, Fort Mifflin, Pa., in compiling a complete list of aircraft (lighter than air and heavier than air) presently owned within the State of Pennsylvania.

All owners of aircraft both pilots and holders are requested to report to the Adjutant General and are requested to send their names, address and full particulars. Prompt response will be greatly appreciated and will undoubtedly bring some of you to interest in return. Address all communications to: W. H. Shelden, 1415 Vine Street, Ardmore, Pa. or to the Adjutant General, Highland Park, Upper Merion, Pa.

Henry Deutsch de la Meurthe Aviation Cup

Mme. Henry Deutsch de la Meurthe and her family have decided to offer, in memory of M. Henry Deutsch de la Meurthe, a sum of 200,000 francs for an international speed contest to be called the Henry Deutsch de la Meurthe Cup.

The cup will be controlled under the conditions laid down in the present regulations which have been drawn up at the request of the General, and with their approval, by the Commission d'Aviation of the Aero Club de France. The Commission d'Aviation is responsible for the organization of the contest.

Prizes

The sum of 200,000 francs will be distributed as follows:
(A) A trophy of 50,000 francs
(B) Three prizes of 50,000 francs each to be awarded to the winners of the cup, in accordance with the present regulations.

General Conditions

The contest will be an international challenge open to all members of class C (three machine with engine). It will consist of a speed test over a distance of about 300 km. Each year before May 1, the Commission d'Aviation of the Aero Club de France, taking into account the progress in aviation, shall publish the special regulations for that year.

Qualifications of Competitors

Every qualified national federation shall apply to the Aero Club de France in Belgium to enter the Cup. This notification must reach the secretary of the Commission d'Aviation of the club before the date fixed by the special regulations for the year.

Every entry must be accompanied by a sum of 1,000 francs for each machine, 500 francs being returned in respect of each machine crossing the starting line in flight. The entrants of each nation shall be restricted to the machines and shall not be represented by a national federation affiliated to the Fédération Aéronautique Internationale.

Each national federation shall not present more than three machines (that is, three machines on entry).

The entrants and pilots in charge of the machines must be of the same nationality as the federation presenting them, or belong to a country not represented as the Fédération Aéronautique Internationale (that entry at war with France from 1914 to 1919 have excepted, unless they are members of the League of Nations).

Date and Place of Contest

The cup will be contested each year on a date and at a place fixed by the special regulations for the year.

Award of the Cup

The national federation requested by the Fédération Aéronautique Internationale whose representative has won the cup shall be the predecessor and final member of the team which has been made. The trophy shall remain in the hands of the Aero Club de France until the final award has been made.

The permanent holder of the cup shall be the competitor who has twice won the contest. In the event of a tie, the first winner. In the event of the first two contests being won by the same competitor, this competitor, having become the per-

manent holder of the cup, shall at the same time receive the remaining two thirds of 50,000 francs.

Entrants are responsible for all accidents to themselves and their property, as well as for the damages of any kind to third parties, officials, etc., caused by their machines, pilots, workmen or themselves.

To satisfy administrative and statistical requirements, competitors must send to the Commission d'Aviation de l'Aero Club de France on a date to be fixed by the special regulations the following information (before to do so may prevent the competitor taking part in the contest):—

1. Name of each machine
2. Name and address of the pilot of the machine, also name and address of the subpilot, if being permissible to choose the first pilot if necessary
3. Name of machine and engine
4. Weight and material of wings
5. Weight of engine
6. Weight of propeller
7. Country of origin

Supplementary Regulations for 1931

The contest will take place over 300 km. on the circuit Villers-les-Moines (the course of the Gordon Bennett Cup, 1921). Alterations, repairs and replacements are allowed. The contest will take place on Oct. 1, 1931.

Entries presented by the national federations must reach the Commission d'Aviation of l'Aero Club de France before 6 p. m. on Aug. 27, 1931. Machines must be on the airfield at Villers-les-Moines before 4 p. m. on the day before the contest, viz., Aug. 30, 1931.

Competitors must send to the secretary of the Commission d'Aviation before 6 p. m. on Aug. 25, 1931, the information requested above.

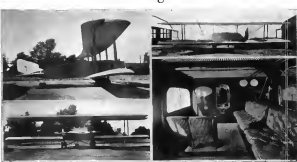
Each entrant must accompany by a declaration on writing to be handed to the Commission Sportive before 6 p. m. on the day before the contest, a person to represent him on the course. This person shall declare the time of departure. The contest shall be open from 9 a. m. to 6 p. m. During this period of nine hours, starts shall be made at seven hours by the competitors, as follows:—

Each entrant on the plane accompanied by him, shall inform the Commission Sportive of his intention of starting, indicating the race in which he wishes to start. The Commission Sportive shall then hand to him a slip from the time of starting, after which 30 min. will be allowed to the competitor to cross the starting line in flight.

If after the expiration of this time the competitor has not crossed the starting line in flight, he will be obliged to make a declaration to the Commission Sportive. The start will be followed as for the first attempt, except that the expiration of the second 30 min. the competitor will be considered to have started.

All communications regarding this contest should be addressed to the Secretary of the Aero Club de France, 17 East 86th Street, New York.

A Distinctive Design: The Airliner



VIEW OF THE LOWER LEFT VERTICAL BLADE OF THE AIRLINER ENGINEERING CORP. THE LOWER RIGHT HAND VIEW SHOWS ONE-HALF OF THE CURVE OF THE

The above illustrations represent various views of the latest commercial airplane which was built by the Airline Engineering Corp., New York, and which has just been completed. The machine embodies a great number of original ideas which give it a distinctive appearance. Chief among these is the great width of the fuselage, which may be visual and from the view showing one-half of the skin. The fuselage is 16 ft. wide in front and is built on the shape of an inverted U; this contributes to the lift of the machine. The power plant is composed of two Liberty XII 400 hp. engines driving tractor propellers. Owing to the width of the fuselage it was possible to locate both engines in the same section of mounting; there is separate wing structure. A great deal of parasite resistance was thus done away with and the arrangement has the further advantage that it enables the mechanic to adjust the engines as flight.

Although no detailed description of the Airliner is as yet available, the following particulars will be of interest. The span of the machine, on both upper and lower wings, is 76 ft. The designed wing loading is 9 lb./sq. ft. and the actual designed fuselage contributes to the lift by carrying 5 lb./sq. ft. The weight empty is about 10,000 lb. and the possible gross weight is estimated at 14,500 lb. The normal full capacity of the machine is for a flight of 75 hr., although more fuel can, of course, be carried if the number of passengers is reduced. Seating accommodation is provided for thirty passengers.

The fuselage is built up on three transverse plywood partitions and is covered with corrugated aluminum. The forward section houses two pilots, for whom a dual control set is provided, and the mechanism. The next two sections constitute the passenger compartment, which is fitted with comfortable cushioned seats. The rear section projects in length but is built to a horizontal knife edge and carries the tail unit. This consists of a horizontal stabilizer with a one-piece elevator and a vertical fin and two rudders mounted on sides of the fuselage.

The wings are built in orthodox fashion, being braced ver-

tically over a wooden framework, and carry balanced ailerons. The landing gear consists of two V struts carrying rubber sprung taxi wheels, which are stayed in the centerline of the fuselage by means of steel struts.

The test flight of the Airliner will take place shortly. A short test flight was achieved on June 21, at Curtiss Field, Long Island, where first flights took place after the machine after running the engines for a while on the ground and flew to a Mitchell Field, where he made a perfect landing.

The design of the Airliner is due to Vincent J. Sweeney, chief engineer of the Airline Engineering Corp.

DH-4B Success Disabled Sub-Chaser

U. S. Marine Corps Headquarters has received the following report from Headquarters, 6th Air Squadron, Port au Prince, Haiti:

"On Sunday, May 26, 1931, one of the subchaser chassis assigned to the 3d Provisional Brigade broke down at Port au Prince, en route to San Domingue City, and it became necessary to take an engine weighing about 90 lb. to that point. On account of the heavy season the roads were impassable and there being no landing field the package was finally delivered by a DH-4B plane piloted by Second Lieutenant Kenneth K. Cullage with Gunner Sergeant Guy B. Smith as observer, as follows:—

"The engine part was loaded and the box wrapped in canvas and securely fastened. Then 30 ft. of wire cable was attached, to the end of the cable a 3-gal. oil can, which had been made suitable, was fastened.

"The airplane first dropped a message on the subchaser stating how the package would be dropped and then dropped the package with attached hook just off shore. The arrangement worked perfectly, the package sinking to about 10 ft. of water and the hook striking the spot.

"The entire trip took 3 hr. 30 min. flying time from Port au Prince."

Active Aero Clubs

Notes.—The clubs listed below, which are marked with an asterisk (*) are affiliated with the Aero Club of America.

Aero Club, University of Minnesota

Minneapolis, Minn.

President, Carlos W. del Plante; Vice President, Robert C. Mearns; Secretary, George Joyner; Treasurer, Jay Davis.

*Aviation Country Club of Detroit

565 First Free Road, Detroit, Mich.

President, H. W. Alden; Vice President, Walter G. Kuhlman; Secretary, Fred E. Hudson; Treasurer, C. G. Bissette.

AS AERONAUT SOCIETY

Henry M. Leland, Col. Sidney D. Wallen, Col. J. O. Vincent, C. F. Kettering, Capt. Eddie Sticksel.

AS AERONAUT SOCIETY

H. W. Alden, Walter G. Kuhlman, D. F. Dwight, Fred W. Warren, Ernest Smith, E. J. Wooding, D. E. Wilson, LeRoy Phillips, C. O. Rowland, John E. King, O. B. Duffell, Fred E. Hudson, Walter Stanley.

Aero Miles City Club

Miles City, Mont.

President, H. B. Wiley; Vice President, Carl B. Cahlan; Secretary, W. G. Ferguson; Treasurer, L. E. Hild.

AS AERONAUT SOCIETY

H. B. Wiley, Carl B. Cahlan, L. E. Hild, W. G. Ferguson, Earl E. Vance.

*Yale Flyers' Club

Westford, Conn.

President, Arthur C. Hinton; Vice President, O. W. H. Pratt; Vice President, Jas. W. Moore; Secretary, Earl E. Knell; Treasurer, Floyd L. Tuttle.

AS AERONAUT SOCIETY

Arthur C. Hinton, Lawrence Stephens, Robert L. Newman, O. W. H. Pratt, Jas. W. Moore, Harry S. Samsen, Earl E. Knell, Forrest A. Flint, J. D. Cameron, L. W. Board.

Aero Club of Utah

225 Lake City, Utah

President, C. L. Nelson; Vice President, B. D. Kelly; Secretary, A. C. Nelson; Treasurer, Wm. H. Gibson.

AS AERONAUT SOCIETY

N. F. Goble, W. D. Birmingham, F. B. Thompson, J. A. Carter, O. H. Byers.

Kansas City Aero Club

Kansas City, Mo.

President, George M. Myers; Secretary, Louis W. Shores; Treasurer, Raymond M. Boyce.

*The Aero Club of Illinois

406 South Michigan Ave., Chicago, Ill.

President, Charles Dushenko; Vice President, James R. Stephens; Secretary, Leo Hammond; Treasurer, John R. Cunningham.

AS AERONAUT SOCIETY

Harold F. McCormack, Charles G. Davis, John T. McCarty, Doug R. Felt, Bruce J. Arnold, Robert G. McElroy, Wm. Bartholomew, Jr., Walter Brock.

Aero Club of Columbia University

New York, N. Y.

President, Robert L. Davis; Vice President, Robert A. Curry; Secretary-Treasurer, D. L. Stonell.

The Illinois Model Aero Club

408 South Michigan Ave., Chicago, Ill.

President, Louis Chappoye; Vice President, Henry Wells; 2nd Vice President, Walter L. Brock; Secretary, Robert James; Club Secretary, Ward Paine; Treasurer, Linn E. Davis; Assistant Com. R. Ford.

The Aero Club of Hartford

101 Church Street, Hartford, Conn.

President, Hiram Perry Moore; Vice President, Judge William J. Malone; Treasurer, Clarence M. Kase; Secretary, J. J. Van Bokk.

AS AERONAUT SOCIETY

Hiram Perry Moore, J. J. Van Bokk, Arthur O. Hinkle, Elmer Rockwell, C. Delaney Allen, Walter S. Smith, William T. Ladd, Ronald R. Davis, Clarence M. Kase, Raymond T. Hixon, Frederick J. Boudkiss, Louis L. Hackett, Harold M. Hise, J. Marshall Robinson, Jr., James R. Robinson.

*Aero Club of Southern California

Seat 406, Tulsa Commerce Building, Los Angeles, Calif.

President-Treasurer, E. M. Spaulding; 1st Vice President, K. M. Turner; 2nd Vice President, John H. Fisher.

AS AERONAUT SOCIETY

E. M. Spaulding, K. M. Turner, John H. Fisher, Frederic Witzky, John E. Miller, A. M. Peck, Albert Lee Stephens, J. A. Jerva, Lee A. Phelps.

Philadelphia Aeronautical Recreation Society

2112 N. Lanes Square, Philadelphia, Pa.

President, Thomas E. Kallinger; M. D. Van President, O. H. Simonsen; D. H. 2nd Vice President, Ira A. Brewster; Secretary, Mrs. M. Thompson; Treasurer, Thomas Eos.

Two Man Altitude Flight

What is believed to be a new world's altitude record for pilot and passenger was made on May 6, 1931, by Lt. J. A. Macready with Ray S. Laughlin as observer, when they reached a corrected indicated altitude of 36,115 ft. They were flying a Lippitt biplane equipped with a Moss supercharger. This airplane is the same one in which Major Schneider made the world's altitude record, both for pilot alone and for pilot and passenger. The preliminary calculations of the navigation and the computations were performed by the Flight Test Branch at McCook Field.

The instrument and data gathered on the flight will be forwarded to the Bureau of Standards for final checking before a world record is claimed. It will be remembered that on the occasion of Major Schneider's altitude flight the Bureau of Standards computation of the results gave a figure more than a thousand feet higher than preliminary calculations performed at McCook Field. In view of that it is considered very probable that Lieutenant Macready has set a new record.

No difficulty was experienced by the pilot except the discomfort caused by the engine added at the high altitude and by the flogging of his goggles. Upon removing his goggles in order to attempt to wipe on from his goggles, he left hand became so stiff from cold that he lost the use of it until the warm air of his altitude reduced the circulation. The engine and supercharger functioned very satisfactorily.

It should be noted that while the figure given above does not represent the true altitude above sea-level actually attained by the airplane at descent ended, the figure upon which altitude records are gauged. The corrected indicated altitude is dependent solely upon the pressure of the atmosphere in which the airplane is flying, and if two airplanes attain the same corrected indicated altitude, the latter of the two airplanes reaches a higher true altitude depends on the temperature existing in the atmosphere between the airplane and the ground, and which is, of course, a matter of fact. It is for the purpose of eliminating the element of fact that the International Association of Professional Aero Club altitude is determined solely, since it is known that, if one airplane reaches a higher corrected indicated altitude than another, (which means lower air pressure) it could not reach the first airplane preceded both were above actual identical atmospheric conditions. In order to obtain the correct indicated altitude, at the temperature and pressure conditions of the barograph and read he accurately barometer and applied to the observed readings obtained on the field. For this purpose standard temperature and pressure conditions are required.

For purposes of comparison it will be remembered that Major Schneider's corrected indicated altitude for the run was (corrected) was 35,385 ft. by the Bureau of Standards computation, and for the two runs record was 35,385 ft. computed by the Flight Test Branch at McCook Field.

Packard Engine Test

The Engineering Division at McCook Field has recently completed a 50-hp. test of the first Packard Model 1231 engine delivered under a recent contract for twenty-five engines. This engine is 12-cylinder, V type, having a bore of 4 in. and 5 1/2 in. stroke. The cylinder heads are set at an angle of 60 deg.

An interesting feature of this engine is the use of 65-1 compression ratio which engine is designed somewhat at sea level in order to prevent pre-ignition. As the altitude increases, the throttle is gradually opened until an altitude of 8,500 ft. is reached, when the throttle may be held open. The arrangement gives a constant power output up to 5,000 ft. altitude.

The engine runs very well during the 50-hp. test and no major deficiencies were manifested. The only points which seemed to require comparison with the engine's operation on the water test track, the former appeared to be too flexible for satisfactory operation and the latter showed excessive wear in some cases.

The engine appears to be very well adapted to present work as its power to weight ratio is very good and its operation appears exceptionally smooth and free from vibration.

The White Aerial Fleet

"The White Aerial Fleet"—this is how the public of Florida and Cuba, range to call the luxurious flying boats which the AVIATION AIRWAYS, Inc., placed in service between Key West, Fla., and Havana last November, when they have been operating ever since without having met a single mishap. The available record, which the AVIATION AIRWAYS give as much to the southeast, very simple material from which its best work up to 30,000 ft. and descent of 45 ft. and second ground personnel, explains the popularity of the White Aerial Fleet has achieved going the flying guide.

During the first six months of operation, ending June 1, the Key West-Havana service of the AVIATION AIRWAYS Co. completed 102 flights, carrying 1,564 passengers, with baggage and 54,912 lb. of mail.

In addition to this service the company maintained other services, which included a regular series of flights up to the total known flying time up to 544, and the total actual mileage up to 38,364.

With the coming of summer, when flying boat trips possess particular charm in our climate, part of the AVIATION AIRWAYS has been transferred to New York, while the other part will insure the daily mail and passenger service between Key West and Havana.

In addition to their well-known Ford F-5-L flying boat, which has accommodations for eleven passengers in two comfortable cabins, AVIATION AIRWAYS have now placed in service a number of converted H-34-L flying boats, which carry five passengers, besides the mail in open seating. These boats are thus particularly desirable craft for summer vacationing trips.

For the convenience of winter travelers AVIATION AIRWAYS have also placed in service a number of the White Aerial Fleet, which boats of the White Aerial Fleet may be chartered for short flights up or down the coast or over the island waters, for all day use, or for a week or longer.

Paris-Warsaw Air Service

The Paris-Warsaw air service was successfully put in operation on April 12, by the extension to the Polish Capital of the Paris-Birmingham-France service, which has been running for some months.

The first service to be employed on the new airway left Warsaw at 8 a. m. with a passenger and mail. After a stop at Poznan, the machine parked up a second passenger and mail. The service was completed at 5:30 p. m. The machine then accomplished a flight of 975 miles in 20 1/2 hrs., an average of 48 hr. required for the entire journey.

Regular service is now being completed for an airway from Berlin to Paris to Moscow, and when this service is running it will be possible to travel by air right through from London to Moscow, a distance of nearly 2,000 miles.

The existing London-Poznan service connects at Poznan with the airway to Warsaw, which goes by the way of Nijmegen and Paderborn, while the Paris-Birmingham Air Service Co., who are responsible for this airway, have obtained permission from the central government, and have already started to open an airway that will connect London through Paris with Constantinople.

Saudi Locomotive Signs up for Pullman Race

A cable dispatch to the Detroit Aviation Society states that Saudi Locomotive, winner of the last Gordon Bennett airplane race and present holder of the world's speed record, has signed an agreement to compete in the Pullman Trophy race, which will be the main event of the aviation meeting to be staged next October near Paris.

M. Lecomte is to act as the driver of the Saudi Locomotive with a substitute pilot. He will fly a Hispano-Suiza engine equipped with a Hispano-Suiza engine. The world's speed record is held by M. Lecomte in 189 m.p.h. in a recent track, which were not officially timed, he is reported to have made a speed of 229 m.p.h.

A Product of the West



FACTORY COMMERCIAL MOTOPLANE LEAVING MARINA FIELD, SAN FRANCISCO, DURING THE RECENT AVIATION MEETING

New Types of Parachutes

By Dr. Alfred Gradewitz

Toward the close of the war the German army authorities began construction of a new type of parachute, which it was thought would be of the highest importance in the interests of aviation. The rules laid down to this effect comprised the adoption of 220 lb. as standard weight of a harness body and the condition that the harness developed on unfolding the parachute should not exceed, say, 650 lb. The maximum speed of the motion from which the parachute descent was to be attempted was supposed to be 165 ft. per sec., about 115 m.p.h.; the landing speed of the parachute and load never exceeding 13 ft. per second.

The firm Balluff-Hildebrand-Greif, of Berlin-Tempelhof, then set out on constructing tests with a view to developing a parachute conforming with these conditions, supposing an ordinary parachute, designed for a load of 220 lb. and a landing speed of 13 ft. per sec., to unfold suddenly within prac-



DOUBLE STAGE PARACHUTE IN VARIOUS POSITIONS OF DEPLOYMENT

tically no time, and suppose further about 2 sec. to have passed from the jump from the airplane involving at the speed of 165 ft. per sec., until the moment of unfolding of the parachute (during which time the absolute speed of the harness body falling through space would have been broken down to, say 126 ft. per sec.) a wind pressure of about 37,500 lb. would have to be overcome for the most unfavorable case, that is, a strain which none of the parachutes to be constructed would be able to stand. Though this strain never comes into actual practice, the opening of the parachute not being instantaneous, possibly lasting but a fraction of a second, this much can be inferred from the above, that as the speed of the airplane increases, the strain obtaining during the unfolding of the parachute is bound to increase to a dangerous measure.

In order to damp these jerks, Messrs. Balluff-Hildebrand-Greif, in plans by Waldemar Müller and A. Hensen, adopted two different schemes, namely:

- (1) Subdividing the parachute into two sections, of which only the outer one is caused to unfold immediately, the remainder not coming into play before this section has been allowed to reach its damping effect, (Figs. 1 to 31), and
- (2) Leaving the parachute chiefly unaltered, that is, so using the parachute as to unfold entirely, but, however, before the parachute and the load is broken, when latter begins to unfold the parachute is unfolded and gradually absorbs the live force of the falling body.

Both these solutions have proved extremely practicable, the

parachutes designed on these lines having, after some preliminary tests from a captive balloon, the roof of an airplane hangar and on the ground, been caused to serve loads in connection with the safety competition organized by the German Air Sport Committee under the auspices of the Scientific Society for Aeronautics. These tests made on the Johannistal airfield, near Berlin, with airplanes of the Deutsche Luftschiffbau from a height of about 1000 ft., were conducted by squally weather and low clouds. A fall of about 126 ft. brought an approximately human dimension was hanging from each parachute.

The outstanding feature of the brake used in connection with one of the parachutes is the possibility of adjustment to a precisely constant, instantaneous effect. The parachute is suspended, its speed is a fraction of a second before reaching its landing speed, while the load suspended from the shaft, being checked by the brake, goes on at its relatively rapid course, until being stopped with regard to the parachute, it eventually picks up the slow downward motion of the latter.

In the case of the recent experimental tests above referred to, this parachute was dropped from a machine flying at a speed of about 145 ft. per sec. The load suspended from it, in accordance with the above, weighed about 126 lb., the brake being adjusted to a braking effect of about 165 lb. The resultant braking distance was more than 65 ft., the braked live energy thus working out at about 17,000 ft. lb., which is the case of higher flying speeds and greater loads, all sources can be considerably increased. The parachute and brake were found to work in the full satisfaction of these premises.

The other parachute, viz., the one working in two stages, comprised a new shaped outer surface allowed first to unfold, thus damping the first shock. As soon as this has been done, that is, a few seconds afterward, the second series is released automatically, thus acting on the interior ropes of the smaller parachute surface and completing a closed, aerodynamic surface. This parachute likewise operated satisfactorily under the same conditions as above stated, in connection with the brake attachment.

It is intended eventually to develop these parachutes, converting them into devices suitable for bodily rescuing the entire airplane.

New Dayton Wright Wing

A new airplane wing capable of vastly increased speed and carrying capacity has been developed by the Dayton Wright Co.

Representatives of foreign governments and several European aircraft manufacturers have recently visited Dayton, where Col. V. E. Clark, Secretary of the Air Service, and chief engineer of the Dayton Wright Co., has been conducting wind tunnel tests of the wing for several months.

According to O. H. Williams, general manager of the Dayton Wright Co., the new wing will permit the construction of an ordinary type biplane or an aircraft airplane from 125 miles in 100 m.p.h. and its load of explosives or merchandise from 450 lb. to over 2,500 lb. in addition to fuel for a 2,000 mile flight. The landing speed of the new wing is to make the ordinary pilot be able to land his machine in the maximum and vastly increase his speed on routes where ordinary landing fields are available, or on new routes over emergency and semi fields. The landing speed is to be such as to skirt in a conservative small area. This makes possible the establishment of terminal facilities only a few hundred feet square in the heart of large cities.

Development of National Resources

The advisers responsible for the development of the newly discovered Texas oil fields, and the other rich, oil-bearing, redoubtable basins, are now in possession of an airplane as a means of transporting developing technical experts to the border fields.

Air Mail Reorganization

Under the direction of Postmaster General Hays an investigation of the Air Mail Service is being held for the purpose of determining what routes should be retained or abandoned from the standpoint of the development of the service, the maintenance, and the rapid dispatch of the mails. Postmaster General Hays believes that the Air Mail is one of the best means for the development of aeronautics because, first, it requires that conditions flying be done under constantly varying conditions; second, it develops a trained personnel which is a national asset in peace and war; third, it develops a system of airways and aids to aerial navigation; fourth, it requires that an efficient meteorological service be maintained; fifth, it develops radio communication methods as applied to airplanes.

There are a positive conference between the Post Office Department, War Department and the Department of Commerce for the purpose of studying the problem of getting the best results from the Air Mail Service. These conferences have to do at present largely with the question of personnel. It is intended to have the Post Office Department, on such work as it may accomplish in the development of aeronautics, cooperate with the War and Navy Departments. The Department of Commerce is interested by virtue of the future interest in commercial aeronautics.

The War Department has assigned to the Air Mail Service an officer who is making a survey of conditions, and is preparing a report which it is hoped will be helpful in bringing about coordination of the various governmental aeronautical interests.

Present indications point to the transcontinental route being the mainstay of the Air Mail Service. It is a route which offers the greatest opportunities for the development of personnel and for experimental work which will be of value to the Army as well as the Air Mail Service and the cause of the development of commercial aeronautics. In connection with the last named there are different schools of thought.

One school maintains that the Post Office Department should not expect indefinitely to conduct the Air Mail, especially where short lines are involved, and that it should as an end as soon as possible withdraw the service to private enterprise. Advocates of this idea claim that the theory upon which the Air Mail Service was inaugurated was to do pioneering work, and thus demonstrate that an air service was possible. There are some advocates of the so-called constant system which provides for an even charge on mail transported by air, the charge being retained, in whole or in part, by the operating company.

Whatever plan is adopted, it will be the purpose of those who direct the Air Mail Service to stimulate the development of commercial aviation.

Reduction in Air Service Personnel

In compliance with the government policy of economy the Army Air Service has, progressively for over a year, reduced its civilian personnel so that by July 1, 1932, it will have attained an attrition of 100 per cent.

The following table shows the strength of the civilian personnel of the Air Service on respective dates:

July 1, 1929	540
January 1, 1931	752
July 1, 1931	808
July 1, 1932	300

The last figures are made necessary by the L.R.S. Bill for the fiscal year ending June 30, 1933, which will provide about \$300,000 for civilian personnel in the office of the Chief of Air Service as against \$214,200 available a year ago.

New Air Line

The Great Lakes Airways Co. will shortly establish a passenger air service between Cleveland and Detroit using Douglas biplanes. The service will be operated by a single pilot and a co-pilot. Two trips will be made per day, each trip taking about an hour and a half.

Congratulations

For the first time in its history, the Air Mail Service for the week ending June 31 had 100 per cent performance on all deliveries.

Changes in the Air Mail Service, which became effective July 1, leaving the discontinuance of the route from Chicago to Minneapolis, and the route from Chicago to St. Louis. The aviation fields at College Park, Maryland, Easton, Pennsylvania, Newark, New Jersey, St. Louis, Missouri, Minneapolis, Minnesota, and LaCrosse, Wisconsin, will be abandoned.



A GROUP OF BRIGADE FIELD, EASTON, COOK, RECOVERED INMATES

shortly after July 1. It has been necessary to abandon these routes because Congress has not appropriated any money for their operation during the next year. The personnel on these discontinued routes will be transferred to the transcontinental routes and as far as possible utilized on regular work or on the reserve list. The equipment will also be utilized in this manner.

The transcontinental route from New York to San Francisco will be continued as usual under appropriation made by Congress.

A New Parachute

F. M. Lewis of Oldham City is the inventor of a parachute which has performed successfully under test.

The inventor, equipped with his parachute, recently jumped from a biplane at an altitude of 100 ft. and landed safely. No structural details of the invention are yet available other than that it is equipped with an automatic opening device.

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